

## TM 531 - MANNITOL MOTILITY NITRATE MEDIUM

### INTENDED USE

For studying mannitol fermentation, nitrate reduction and motility of bacteria.

### PRODUCT SUMMARY AND EXPLANATION

Mannitol Motility Nitrate Medium is designed to differentiate bacteria on the basis of their motility, ability to ferment mannitol and reduce nitrate. The highly nutritious casein enzymic hydrolysate supports luxuriant growth of bacteria. Semisolid nature of the medium due to 0.35% agar helps to detect motility. Motile bacteria produce diffused growth throughout the medium while non motile bacteria grow only along the line of inoculation. Combination of mannitol and phenol red helps differentiation of mannitol fermenting bacteria which turns the medium yellow.

Reduction of nitrate is generally an anaerobic respiration in which an organism derives its oxygen from nitrate. Members of *Enterobacteriaceae* characteristically reduce nitrate to nitrite which reacts with sulfanilic acid and dimethyl-1-naphthylamine to produce the red colour.

### COMPOSITION

Ingredients	Gms / Ltr
Casein enzymic hydrolysate	10.000
Potassium nitrate	1.000
Mannitol	7.500
Phenol red	0.040
Agar	3.500

### PRINCIPLE

Casein enzymic hydrolysate contains tryptophan, which is acted upon by certain microorganisms, resulting in the production of indole. Potassium nitrate acts as the substrate for determining nitrate reduction by microorganisms.

### INSTRUCTION FOR USE

- Dissolve 22.04 grams in 1000 ml distilled water.
- Heat to boiling to dissolve the medium completely.
- Dispense into test tubes. Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Cool the medium in an upright position.

### QUALITY CONTROL SPECIFICATIONS

<b>Appearance of Powder</b>	: Light yellow to pink homogeneous free flowing powder.
<b>Appearance of prepared medium</b>	: Red coloured clear to slightly opalescent semisolid gel forms in tubes.
<b>pH (at 25°C)</b>	: 7.6±0.2

### INTERPRETATION

Cultural characteristics observed after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Mannitol fermentation	Motility	Nitrate reduction	Incubation Temperature	Incubation Period



<i>Escherichia coli</i>	35218	50-100	Luxuriant	Positive reaction, yellow colour	Positive, growth away from stabline causing turbidity	Positive reaction red colour developed within 1-2 minutes	35-37°C	18-24 Hours
<i>Proteus vulgaris</i>	13315	50-100	Luxuriant	Negative reaction, no colour change or red	Positive, growth away from stabline causing turbidity	Positive reaction red colour developed within 1-2 minutes	35-37°C	18-24 Hours
<i>Salmonella Typhi</i>	6539	50-100	Luxuriant	Positive reaction, yellow colour	Positive, growth away from stabline causing turbidity	Positive reaction red colour developed within 1-2 minutes	35-37°C	18-24 Hours
<i>Shigella sonnei</i>	25931	50-100	Luxuriant	Positive reaction, yellow colour	Negative, growth along the stabline, surrounding medium remains clear	Positive reaction red colour developed within 1-2 minutes	35-37°C	18-24 Hours
<i>Staphylococcus aureus</i>	25923	50-100	Luxuriant	Positive reaction, yellow colour	Negative, growth along the stabline, surrounding medium remains clear	Positive reaction red colour developed within 1-2 minutes	35-37°C	18-24 Hours
<i>Staphylococcus epidermidis</i>	12228	50-100	Luxuriant	Negative reaction, no colour change or red	Negative, growth along the stabline, surrounding medium remains clear	Positive reaction red colour developed within 1-2 minutes	35-37°C	18-24 Hours

**PACKAGING:**

In pack size of 500 gm bottles.

**STORAGE**

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

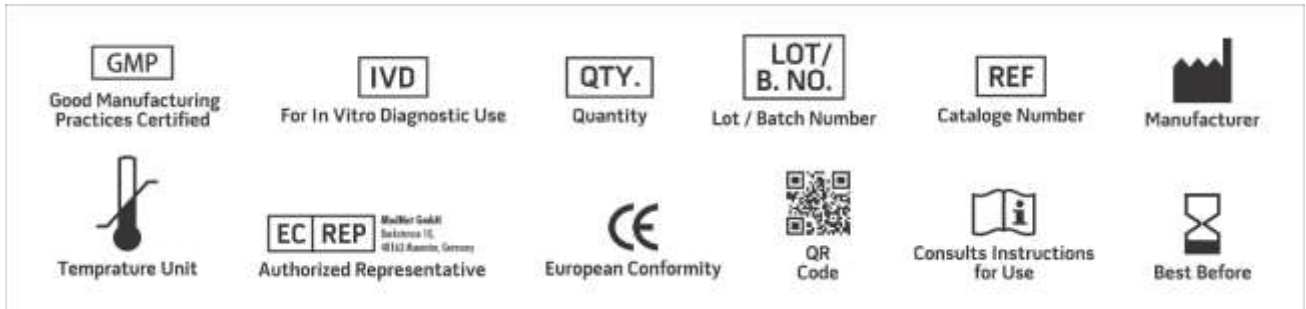
**DISPOSAL**



After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

### REFERENCES

1. MacFaddin, 1980, Biochemical Tests, for the Identification of Medical Bacteria, 2nd ed. Williams and Wilkins Baltimore.



**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

**\*For Lab Use Only**  
**Revision: 08 Nov., 2019**